Interoperability – a personal perspective

John Coski

DaimlerChrysler

March 2006

December 1968

The “mother of all demonstrations” was conducted at Stanford.

One man, Doug Engelbart, had a vision for “augmenting the human intellect . . .(by using) streamlined terminology and notation, sophisticated methods, and high-powered electronic aids."

-- Engelbart, Augmenting Human Intellect: Introduction - 1962

The computer mouse, hyperlinks, hierarchical organization of data, GUI concepts, e-mail, and on-screen video conferencing were all a part of that 90 minute demonstration. . .

Above all, the demonstration illustrated his vision for the open exchange of information.

. . . . the open exchange of information.

When I began working at Chrysler, information was primarily passed verbally, or on paper.

- About 30 Production Control people occupied the office space next to mine. Each desk was piled high with papers containing hand-written counts for parts on hand, parts in trailers, parts in-transit.
- The Engineering releases were hand drawn on velum paper, using Koh-i-Noor drafting pencils, sharpened in little rotating cups.
- The quality people in the plants I visited connected dots on graph paper.

The amount of information each person could disseminate was still relatively limited . . .

But in the 1980's, as computers became more commonplace, we were able to create much more data . . .

. . . in more formats than anyone would have ever thought possible

My job was to fix Engineering and Quality problems, and to do that I needed data.

There was enough data around to choke a horse – but every time I encountered a problem

I needed more data. . .

Entire rooms were filled with tapes, floor to ceiling

But I could never find what I was looking for . . .

Separate, remote databases had appeared like tombstones.

Business managers were tempted by hype from purveyors of “vertical” integration schemes, that provided “web” views of data in their existing structures.

There was no horizontal integration of quality data anywhere

Then a lot of stuff happened. . .

About four weeks into my new job as “Quality Systems Senior Manager”,

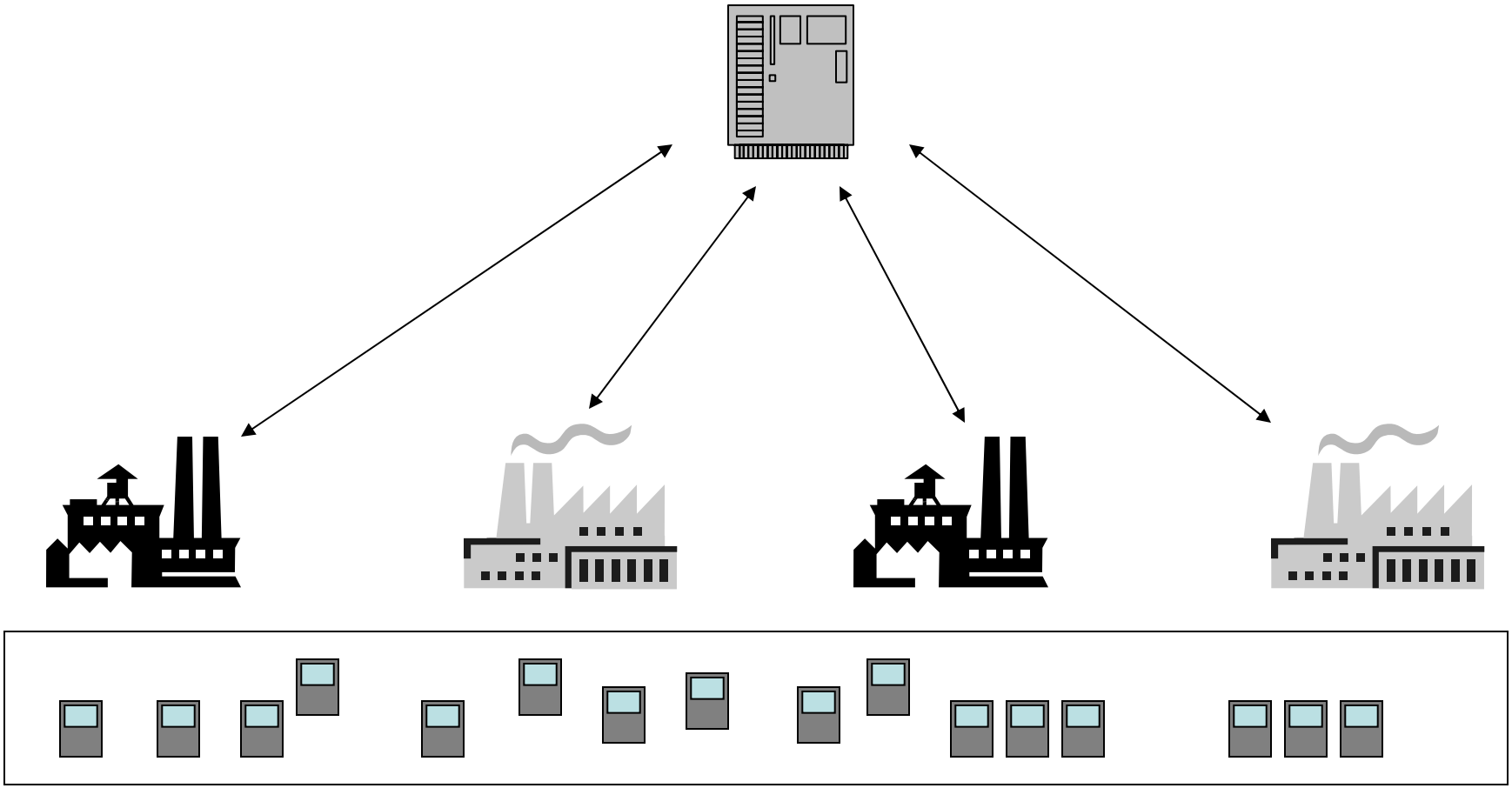
I realized that the “Systems” really meant “Computer”

We were launching a new business model for Corporate Quality that required extensive data collection and reporting capability

Everyone told the CEO how terrific it would be !

No one had given one wit to the system that would support it.

A few months later, we deployed a production system which was novel for the time.



1 Centralized Set-ups (synched data up and down)
2 Direct read-across of information for all the plants
3 Used fully interchangeable touch screen data collectors

Then a lot of stuff happened. . .

And I was asked to create a new “Web” reporting system for a new Manufacturing “body-quality audit”.

I decided to use the opportunity to design a “generic” web system that could service all the quality measurement activities at Chrysler !

Prudently, I started small - building a “sand-box” system, based on user inputs and suggestions.

- but it was anything but prudent

It was bad.

Because:

- Four VP's suddenly told me to put my sandbox system into production.
- It was "plant-centric" and lacked any real "read-across" ability that even my prior system had provided.
- It could only support only the one business activity.
- It was a FLAT template based architecture, with no strong governing hierarchical organization in the data.

I had given the users exactly what they asked for.

- Not what they needed.

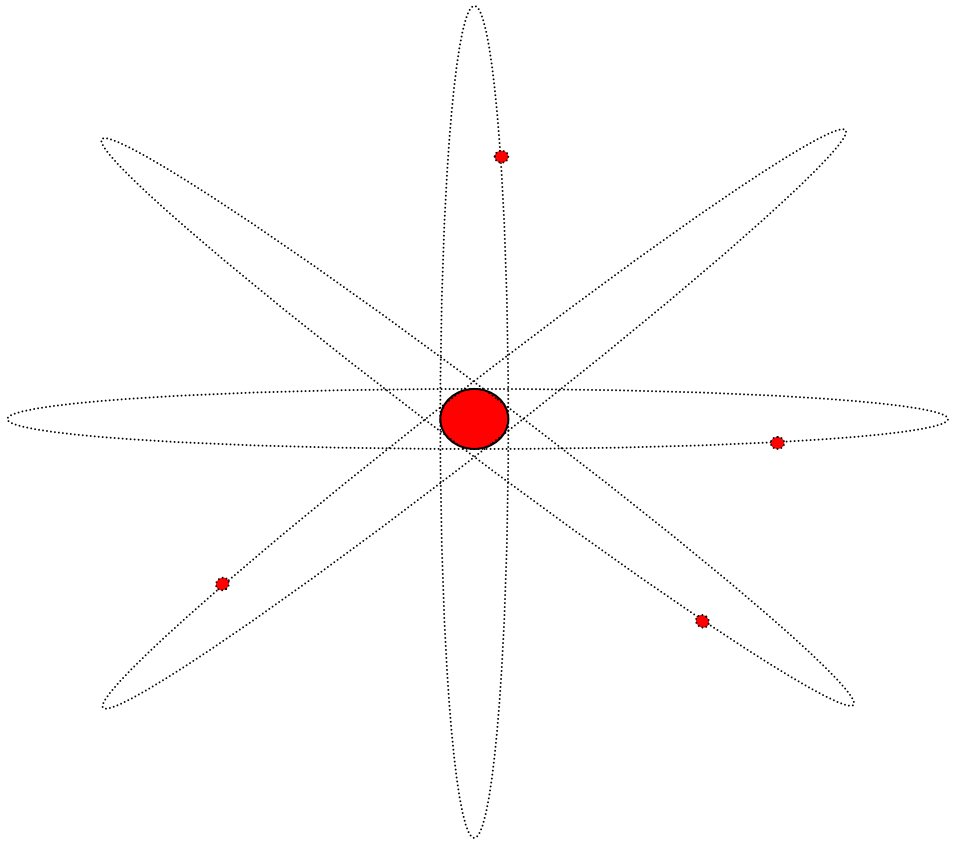
Now much wiser - (and just about 5 minutes older)

We began creating the system we had set out to create in the 1st place –

A true Common Quality Reporting system

We started with a universal concept –

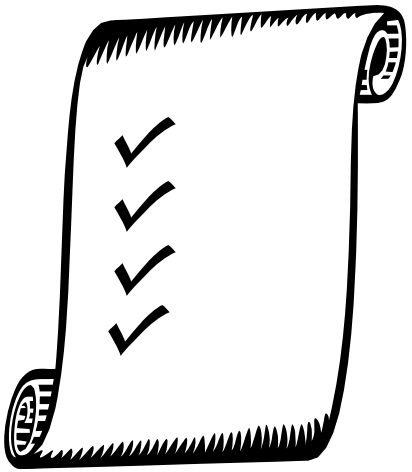
The characteristic = the “thing” you measure.



. . .Loose or wrong, 3 or 4.0; Yes/No – it made no difference.

And we created checklists like everyone else

- but unlike everyone else we could commingle variable attribute and binary characteristics separately or together, in reporting, or at the point of data collection



We gave the checks context, in a hierarchal “tree” structure that allowed for full extensibility

This allowed custom content for various activities within a common architecture

We added switches to mandate or waive various business rules

So the users could have their cake and eat it – or not

We defined universal predicates for what would and would not define sample populations

So that every algorithm could be applied equally to data sets – universally

We created re-useable Java classes and programs

To share reporting features with multiple quality data collection activities

We created common hierarchical UI's and security schemas

Complete control over content and access to administrative functions

We developed an ETL utility, to reach into remote sources, to flow data in real time

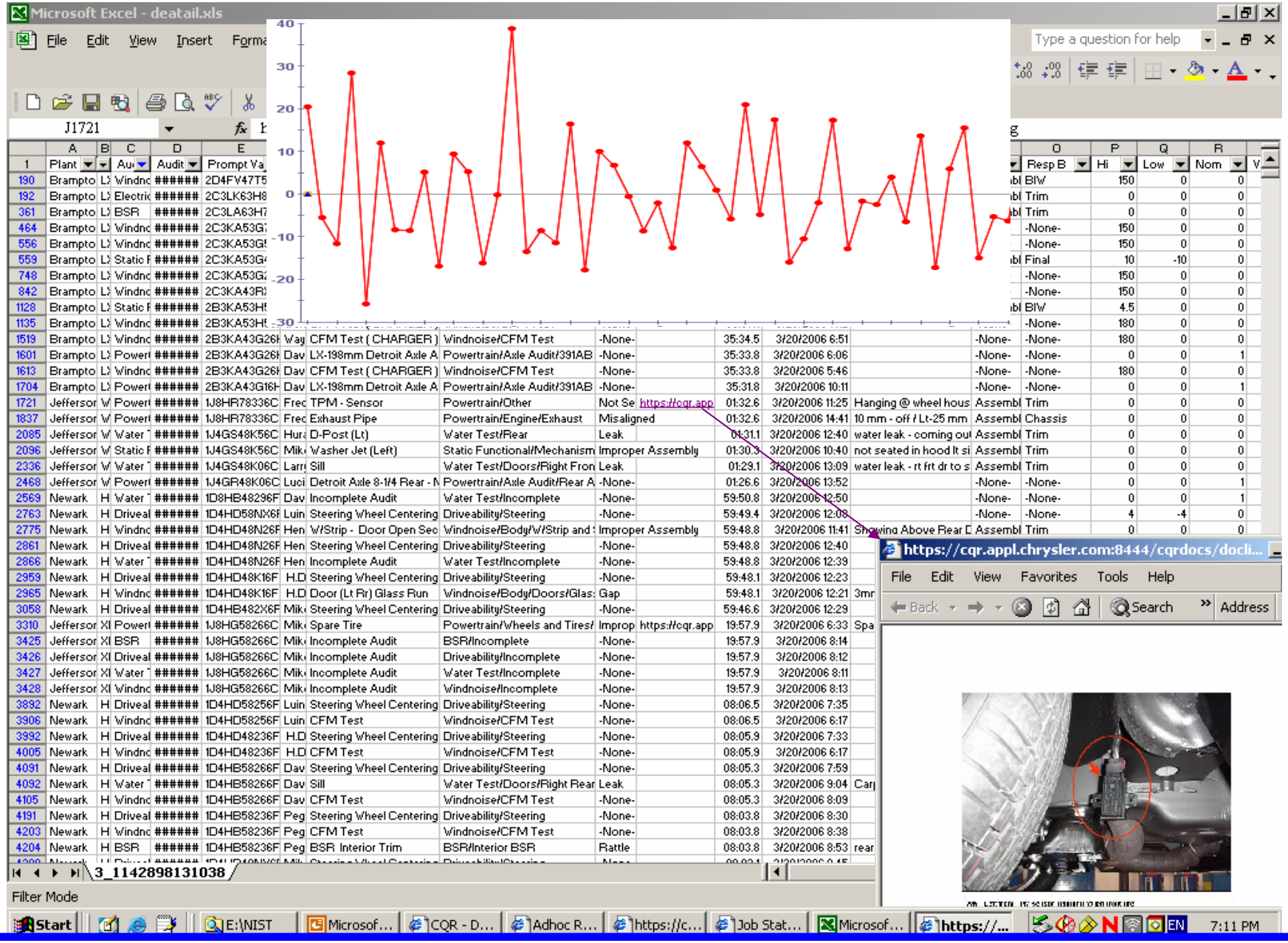
Huge, flat expanses of plant data were given "context" and effectively removed from their "data islands"

We created a user friendly, but very capable Statistical web reporting utility

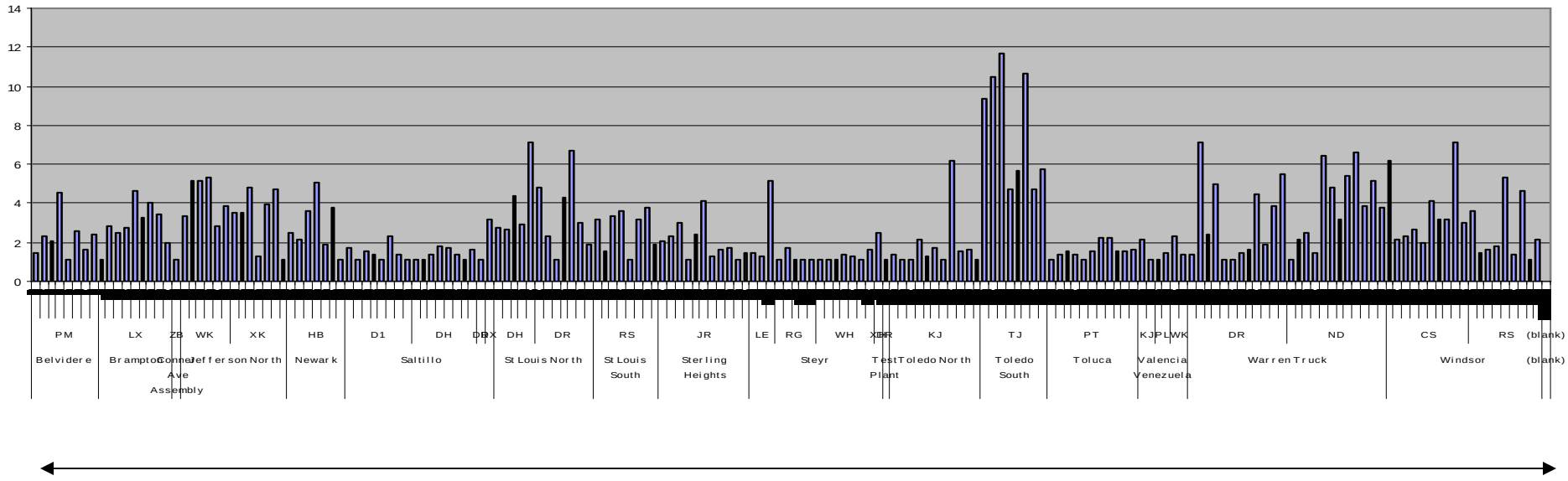
Providing SPC quality tools to more people than ever b4

And we provided an exceedingly capable AdHoc analytical reporting tool. . .

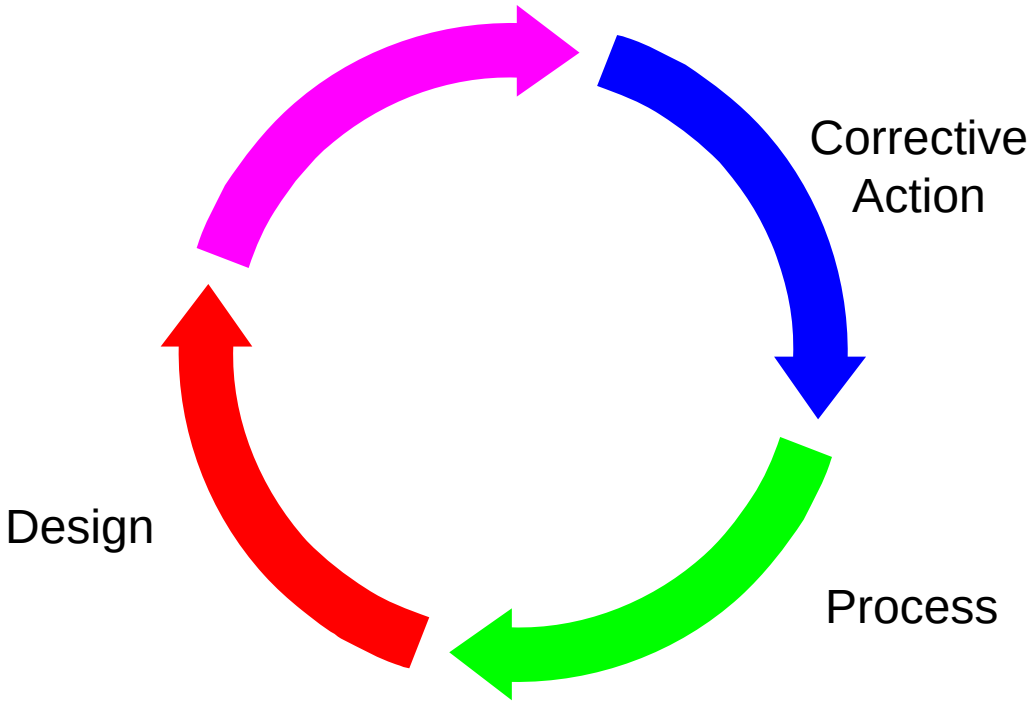
… with measurement detail from any source, anywhere



And completely horizontal read-across, at any level of aggregation of Activities, Plants, Products, Checks or Characteristics



And so we started to use Measurement to . . . .



And we improved Quality

So 37 years later, and perhaps accidentally, we began to augment our own human intellect just a little. . .

We used some streamlined technology and notation, sophisticated methods, and high-powered electronic aids.

We used the computer mouse, hyperlinks, hierarchical organization of data, GUI concepts, e-mail, and on-screen video conferencing that all serve to illustrate his vision for

. . . the open exchange of information

Thanks, Doug